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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2021973PC/ko	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI2003/000835	International filing date (day/month/year) 06.11.2003	Priority date (day/month/year) 08.11.2002
International Patent Classification (IPC) or national classification and IPC F16B 31/02, F16L 47/00		
Applicant Uponor Innovation AB et al		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 13.05.2004	Date of completion of this report 14.01.2005
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000835

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1 - 7 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 8 - 9 received by this Authority on 07.09.2004

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-7</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-7</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-7</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: US6322108 B1

D2: GB2327107 A

D3: JP9242729 A

D4: US4790573 A

From documents D1-D3, tool gripping portions for connections or nuts are known. The documents show various ways to prevent damage by limiting the possible torque exerted by a tool, on the gripping portion. The claimed invention differs from the cited documents D1-D3 in that the gripping portion designed for a tool comprises rounded portions between adjacent straight portions whereby the tool slips when exerted torque is too great. Therefore, documents D1-D3 are only a background art documents. The document D4 cited in the International Search Report also represent prior art. The claimed invention is not considered to be anticipated by these documents.

None of the cited documents, taken alone or in combination, reveals the invention defined in claims 1-7. Furthermore, in the cited documents there are no suggestions leading a person skilled in the art towards the invention defined by claims 1-7. Consequently the invention is novel and is considered to involve an inventive step and to be industrially applicable.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000835

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Note that the use of the wording "periphery" in claims 3, 4 and 7 appears unfortunate since it can be misunderstood. A suitable word in this context would be "circumference".

CLAIMS

1. A connecting piece, intended for connecting at least two elements (2, 3), whereby a first element (2) is connected to a first end of the connecting piece (1) and a second element (3) is connected to a second end of the connecting piece (1), the body (4) of the connecting piece (1) being mainly of plastic and a metal insert provided with a thread (6) being arranged at at least one end of the connecting piece (1), whereby at least one element (2, 3) is connectable to the connecting piece (1) with threaded connection and there is at least one gripping element on the outer surface of the connecting piece (1) for rotating the connecting piece (1) or keeping it still upon making the threaded connection, **characterized** in that the gripping element comprises at least two straight portions (10) such that two straight portions (10) on opposite sides of the connecting piece (1) are parallel, the straight portions (10) forming gripping surfaces for a tool, and that there is a rounded portion (11) between adjacent straight portions (10), whereby the gripping element is formed such that the tool round the gripping element slips before the thread (6) and/or the basic structure of the connecting piece (1) gets damaged.

2. A connecting piece according to claim 1, **characterized** in that the gripping element comprises six straight portions (10).

3. A connecting piece according to claim 1 or 2, **characterized** in that the gripping element is formed of two or more ribs (9) in the direction of the periphery of the connecting piece.

4. A connecting piece according to claim 3, **characterized** in that the outer surface of the metal insert (5) is provided with ribs (12) in the direction of the periphery, the ribs (12) of the metal insert (5) and the ribs (9) on the outer surface of the connecting piece (1) being arranged at the same point.

5. A connecting piece, intended for connecting at least two elements (2, 3), whereby a first element (2) is connected to a first end of the connecting piece (1) and a second element (3) is connected to a second end of the connecting piece (1), the body (4) of the connecting piece (1) being mainly of thermoplast and a thread (6) being formed at at least one end of the connecting piece (1), whereby at least one element (2, 3) is connectable to the connecting piece (1) with threaded connection and there is at least one gripping element on the outer surface of the connecting piece (1) for rotating

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the connecting piece (1) or keeping it still upon making the threaded connection, **characterized** in that the gripping element comprises at least two straight portions (10) such that two straight portions (10) on opposite sides of the connecting piece (1) are parallel, the straight portions (10) forming gripping surfaces for a tool, and that there is a rounded portion (11) between adjacent straight portions (10), whereby the gripping element is formed such that the tool round the gripping element slips before the thread (6) of the connecting piece (1) gets damaged.

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10 6. A connecting piece according to claim 5, **characterized** in that the gripping element comprises six straight portions (10).

7. A connecting piece according to claim 5 or 6, **characterized** in that the gripping element is formed of two or more ribs (9) in the direction of the periphery of the connecting piece.